

Clean corrected claims

1. An ultrasonic longitudinal-torsion tissue dissection system comprising
an electrical generator supplying alternating electrical voltage at a single
frequency and by connection to

a electro-mechanical transducer excited at the single frequency by the
electrical generator, the electro-mechanical transducer joined
mechanically to

a longitudinal-torsional resonator excited by the electro-mechanical
transducer at the single frequency for providing combined longitudinal and
torsional motion in frequency synchronism, the longitudinal-torsional
resonator mechanically joined to

a tip shaped for cutting of resistant biological tissue.
2. The system of claim 1 where the electro-mechanical transducer is a
longitudinal transducer.
3. The system of claim 1 where the electro-mechanical transducer is a
torsional transducer.
4. An ultrasonic longitudinal-torsion tissue dissection system comprising

an electrical generator supplying alternating electrical voltage and current
at a single frequency by connection to

an electro-mechanical transducer excited at the single frequency by the
electrical generator, the electro-mechanical transducer joined
mechanically to

a longitudinal-torsional resonator excited by the electro-mechanical transducer at the single frequency for providing combined longitudinal and torsional motion in frequency synchronism, the longitudinal-torsional resonator mechanically joined to
a tip shaped for cutting of resistant biological tissue

a source of irrigation fluid connected to

said longitudinal-torsional resonator.

5. The system of claim 4 where the electro-mechanical transducer is a piezo longitudinal transducer.

6. The system of claim 4 where the electro-mechanical transducer is a piezo torsional transducer.

7. The system of claim 4 where said source of irrigation fluid is connected to said electro-mechanical transducer.

8. An ultrasonic longitudinal-torsion tissue dissection system comprising
an electrical generator supplying alternating electrical voltage and current at a single frequency by connection to

an electro-mechanical transducer excited at the single frequency by the electrical generator, the electro-mechanical transducer joined mechanically to

a longitudinal-torsional resonator excited by the electro-mechanical transducer at at the single frequency for providing combined longitudinal

and torsional motion in frequency synchronism, the longitudinal-torsional resonator mechanically joined to
a tip shaped for dissecting resistant biological tissue,

a vacuum source connected to said longitudinal-torsional resonator for removal of the dissected resistant biological tissue.

9. The system of claim 8 where the electro-mechanical transducer is a longitudinal transducer.
10. The system of claim 8 where the electro-mechanical transducer is a torsional transducer.
11. The system of claim 8 where said source of irrigation fluid also provides vacuum and is connected to said electro-mechanical transducer.